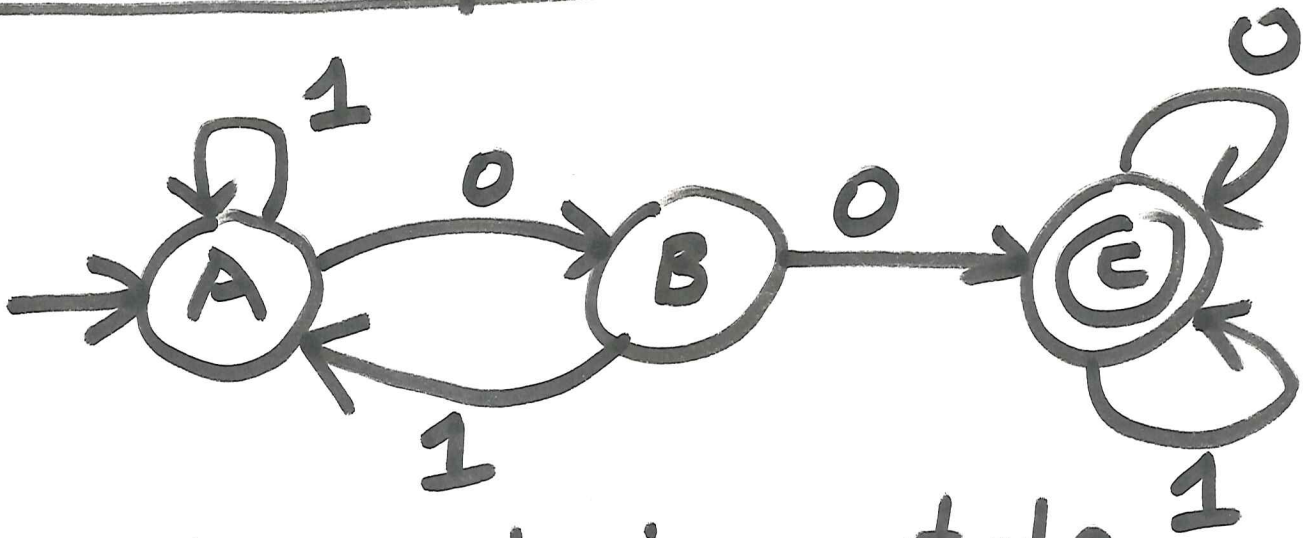
Finite Automata

First Example



each circle is a state for a string, e.g. 011001, we start in A and follow the arrows. So here it goes BAABCC. What matters is the state at end. Some states are accept states, indicated by double circle, here C. Other states are reject states.

The start state has in-arrow from nowhere. So 011001 is accepted. So is 0000. But 11011 ends in state A and is rejected.

Question: what strings does this accept?

Answer: All strings containing two 0's in a row.

Terminology:

This is finite automaton (FA)
Arrows are transitions.

Alphabet = set of characters
String = finite sequence of characters

Language = set of strings

language of FA = set of strings it accepts

ε (epsilon) means empty string

[Books differ]